STM JOURNALS

Journal of
Web Engineering & Technology

ISSN: 2455-1880
Volume 12, Issue 1, 2025
January–April
DOI (Journal): 10.37591/JoWET

https://journals.stmjournals.com/jowet

Review JoWET

Internet: Web 3.0 and the Rise of the Metaverse

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Abstract

After the evolution of the internet, the first information superhighway was the read-only web and the participatory social web, the user-generated and social media web. Now, the Semantic Web, which is also known as the read-write-trust web is slated to transpire the next iteration of the internet. The read-write-execute web is considered the ensuing leap in the progression of the internet; imaging a decentralized ecosystem based on blockchain technology. Metaverse is phonography for a digital environment where users can associate with one another and seize the applications and benefits in an enveloping way. To compendium the anticipation for Parallel World, it is necessary to prioritize the implementation of decentralization and user ownership which can be achieved by the set of canon laws that Web 3.0 provides. In this document, we propose the revolution of Web 3.0 and metaverse in the virtual world. Efforts have been made to cover the nebulous concept of two current buzzwords including similarities and dissimilarities between Web 3.0 and Metaverse and how they will complement each other in the future scenario. In this document, we propose a comprehensive examination of how Web 3.0 and metaverse will revolutionize the virtual world. Efforts have been made to elucidate these complex concepts and to highlight both similarities and differences between Web 3.0 and Metaverse. Our analysis also explores how these two emerging domains will complement each other in future scenarios, setting the foundation for a truly user-centered digital era.

Keywords: Metaverse, Ajax, Web 3.0, Blockchain, decentralization

INTRODUCTION

Metaverse is a virtual space that allows humans to access and play resources. Web 3.0 is a user interface platform that provides a means of approaching documents, files, and other media on online platforms. This study aimed to achieve the following objectives.

- To describe the kinship between the Web 3.0 and Meta universe.
- To explore and analyze the objective, operation, and contentedness of Web 3.0, and the metaverse among educators, investigators, learners, and developers.
- To find consciousness and knowledge about the networking superhighways.
- Investigating that networking tools are also playing an important role in academics.

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Received Date: December 14, 2024
Accepted Date: December 23, 2024
Published Date: January 08, 2025

Citation: Aditi Vishnoi, Gauri Vishnoi, Subhash Singh Parihar, Kumar Saurabh. Internet: Web 3.0 and the Rise of the Metaverse. Journal of Web Engineering & Technology. 2025; 12(1): 37–48p.

Web 3.0, referred to as the read-write and trusted environment, depicts the future toward which several accept the web is headed. It is not only a new way to build internet sites, but it is the complete virginal of experiencing the internet [1]. This is the immigration of the web [2].

Earlier, only a few digital creators were present on Web 1, where online diaries were common, consisting mainly of flat pages hosted on IAP-run servers or free website organizing ministries. After the dotcom crash, around 2004, Web 2 started

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booming. Web 2.0, which is the ongoing form of the World Wide Web, is also known as the community-based Web. Its main features are sharing, liking, commenting, and creating [3].

It is known to various multinational corporations such as Google, IBM, HP, and Cisco and offers highly interactive internet sites from other large companies. Web 3.0 orchestrates the coming times. This is the holy grail of many learners, inventors, researchers, and entrepreneurs [4]. Web 3.0 will become more interactive and highly decentralized (Figure 1). Currently, AJAX is the trending technology of the Web 3.0. AJAX stands for Asynchronous Javascript and XML. AJAX is the art of switching data with a server and upgrading parts of a webpage without reloading the page [5]. This technique is based on the JavaScript programming technique, which allows content to be fetched from the web server in the background by running JavaScript in a local web browser [6].

Metaverse is an imaginary repetition of the network as a universal, immersive cyber environment expedited by the use of real and cyber-reality headphones (Figure 2). In 1992, the term "metaverse" originated from the fantasy novel Snow Crash as a portmanteau of meta and the whole world [7]. The expansion of the metaverse is often linked to simulated 3-D technology due to the growing demand for fascination [8].

The current fascination with the circumstances of the metaverse has been affected by Web 3.0, an abstraction of a distributed repetition of the network. Web 3.0 and metaverse have been used as buzzwords to account for the advancement of various related gadgets and ventures for promotion justification.

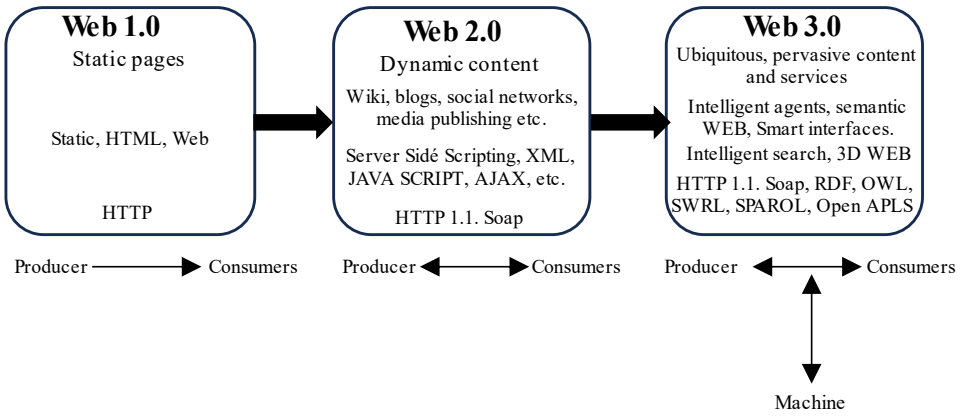

Figure 1. Evolution of the web.

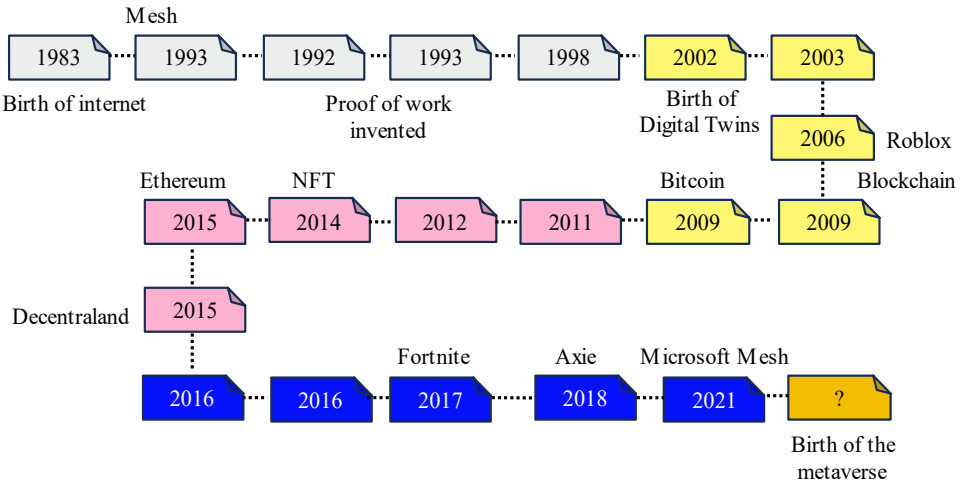

Figure 2. Metaverse timeline.

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Metaverse is a web work in 3D cyberspace enthralled in community-based interactions. In modernistic and space illusion, it is usually set out as a conjectural duplication of the network as the ubiquitous cyberspace is expedited by the use of virtual and augmented reality apparatus.

To increase fascination, cyberspace gadgetry is generally correlated with metaverse enlargement. The term cooperative communication has overemphasized the advancement of multiple technologies and projects. The provocations of phizog social networks and digital recreation industries are multiverse seclusion, fixation, and safety hazards [9].

WEB 3.0

Web 3.0 rebellion will make use of dissemination agreements such as blockchain, which is used to make Bitcoin transactions possible [10].

In the last couple of years, learning activities have benefited from the practical evolution of websites. Currently, the Web has become the most proficient and strong root of information [11].

Today, the vast majority of global citizens depend heavily on the assistance provided by tech giants. Antithetically, Google, Microsoft, Amazon, and Wipro give orders to what facilities their users can use and act as middlemen between their users and their desires. Therefore, web 3.0 works on unauthorized web work and does not need permission [12].

Core Components of Web 3.0

Blockchain Network

One of the key attributes of Web 3.0 is Blockchain technology. Decentralization is known as the heart of Web 3.0, which is set upon the cryptographic ledger. Using a distributed ledger, data are distributed, open, and deconcentrated. An important feature of the potential network era is the use of cryptocurrencies on Web 3.0. In addition, users can gain benefits for their synchronization to the platform's rise by transparently attending to online improvements.

Artificial Intelligence

As an outcome of the improvement of AI, various gainful predictions can now be made, and even life-saving movements can be taken. As big companies control the majority of web traffic, Web 2.0 has an intelligent network partition, and is still largely human-driven. The aim of Web 3.0 is to shorten the occurrence of direction. In a backpedal, people may be paid for giving negative feedback to an app.

It is therefore likely that vicious behaviors such as one-sided product analysis, rigged gradings of some internet services, and human errors will continue to exist. To build a few Web 3.0 apps, the following two mechanisms will be used: augmented reality (AR) and virtual reality (VR).

Web 3.0 pivots on increased affinity, decentralized execution of product content, and tokenization, which depend on blockchain technology. The outcome is not static, similar to Web 1.0, or dependent on Big Tech companies, such as Web 2.0 [13]. Web 3.0 is autonomous. This shows the following attributes.

Decentralized

Web 3.0 information is accumulated in a decentralized network; therefore, no individual network has access to all of it. They are scattered across various stages and platforms. This expedites distributed ingress and increases the probability of collapse [14].

Unauthorized

The network that may be retrieved by consumers without requiring special authorization in Web 3.0. To obtain specific services, users must not disclose their details.

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Secure

Because of the decentralized and distributed network, it becomes very difficult for hackers to target a specific dataset, as Web 3.0 is much more secure than Web 2.0 [15].

Application of Web 3.0

The Web 3.0 rostrum is outlined to give consumers access to their information, which results in individuals lying in their power to provide facilities to one another and to control the aspects of the network that they use without dependency on big technical companies.

Some exemplifications of Web 3.0 implementations are as follows:

Bitcoin: The World's largest token is a perfect example of a distributed business.
Siri: The knotty and customized manifesto by using speech recognition and AI tech.
OpenSea: It is a public transaction ledger for trading and purchasing NFTs.
Google Cloud: Big technologies are known to be beefing up Web 3.0 into a cloud system.

USAGE SCENARIO AND APPROACHES OF METAVERSE

In the metaverse, users can work, learn, and play games with other users. Metaverse technology is a climax of Web 3.0 and will be built using blockchain systems and run by a network of computers around the world rather than a monad. Usage scenario and approaches of metaverse are given below:

Cyberspace

Cyberspace marked the debut of Facebook in 2019. The chairman of Facebook, Mark Zuckerberg, publicized that the organization will prosper as a metaverse in 2021.

Meta-podiums have encouraged various VR gadgets that prevail to be illuminated. Microsoft appointed Alt Space VR, a VR company, in 2017.

Electronic Games

The Web 3.0 rostrum is outlined to give consumers metaverse gadgets that have been unsegregated into the latest networked digital games for some time now. Numerous tremendously multiplayer wired games and communal purposes play an essential character. Notch's popular gameplay speaks of the futuristic metaphor of a metaverse.

Hardware Apparatus

Mobiles and desktops open wedges to the metaverse. The growth and acceptance of the metaverse have become limited by an increase in the need for VR technology. Portability and excellent illustrations have been impeded by modest portable instruments and the need to balance blueprints and costs. With the expansion and evolution of fragile portable microphones, earbuds, and hand-free devices, the desire for retina display pixel density has increased.

Software Technology

There are no widely constant technical specifications established for metaverse applications. Currently, proprietary technologies are being used in most applications. Interoperability is a crucial disquiet in the enlargement of metaverses. Standardized holographic atmospheres have been used in several projects. A metaverse is a network that is intricate and occupied by human beings.

SIMILARITIES BETWEEN WEB 3.0 AND METAVERSE

Both Web 3.0 and metaverse are distributed networks. Blockchain technology was used to provide a decentralized network to Web 3.0. Web 3.0 is built on a processor work group. No ascendancy-controlling Web 3.0. Metaverse is an electronic environment that works on a distributed blockchain lattice.

Web 3.0 and metaverse permit and authorize users to manage and rule their metadata. Web 3.0 bolsters the use of cryptocurrencies and other electronic devices. Ventures. Likewise, metaverse users

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can access property and computerized information. Both Web 3.0 and metaverse provide hypnotic exposure to customers. The metaverse clouts cyberspace and the digital environment to fabricate the most interactive and engaging consumer acquaintances. It employs scatter solicitations that are more immovable, systematic, and transparent than those of traditional networking sites.

Web 3.0 and metaverse are collaborative systems. Web 3.0 depends on the robust contributions of originators and users. Comparably, the metaverse depends on its coterie to fabricate cyberspace observations and entreaty, manage the podium, and resolve its failure path.

METAVERSE VERSUS WEB 3.0

- *Application:* Metaverse combines various aspects of technology as we know of today. Therefore, it is still in progress, and many of its aspects are still being explored. The requirement of Web 3.0 is to be had all over the web.
- *Objective:* Metaverse enables interactions with friends and objects in a 3D environment. Web 3.0 helps individuals create their own and set content. Users will also be charged with their content.
- *Technology:* The combination of crypto marked the beginning of the separated transformation to web 3.0, whereas metaverse is based on AR, an edge computing human interface.
- *Ownership Conflict:* Big technologies are starting to reconstruct or pay for businesses on the Metaverse to gain command of the state. Web 3.0 and Metaverse will make the recently discovered and disseminate the world reality, which will exist virtually.

PROSPECTS OF METAVERSE AND WEB 3.0

The prospects for Web 3.0, and metaverse, are limited. Professionals speculate that these mechanics transform the manner of living, working, and interacting with one another. By 2023, the percentage of budgeting apps established on Web 3.0 technologies is 46 and the numbers are constantly rising. Meanwhile, in the metaverse, consumers can observe the most enveloping and fascinating trials with the ability to influence digital objects in a 3D world. By 2030, the global valuation of the metaverse is envisioned to reach approximately $679 billion (approximately).

Web 3.0, and metaverse offer massive windows. For example, the combination of Web 3.0 and metaverse can be accompanied by a new phase of electronic alteration. As Web 3.0 becomes more distributed and user-operable, the metaverse is likely to become more accessible and acclimated.

This can lead to a virtual world interspersed with the network. In such an environment, users can ideally proceed with the natural and automated earth. However, some possible issues need to be addressed. An ambitious prodding is to be well-matched with one another to propose excellent user observation.

Another provocation is the access constraint. Web 3.0 and metaverse recommend that computerized divides be fattened. Individuals and communities with scarcity ingress to broadband connections or the obligatory system may be sinister after. Efforts must be made to ensure that these gadgets are accessible to everyone without any bigotry.

ANALYSIS OF RESULT AND DISCUSSION

Basically, by keeping in mind and analyzing the objectives and uses of the present-day scenario and detecting the difference among the three categories belonging to the low communal website consumers, the central communal website users, and the high communal web users, percentile scrutiny was premeditated. The consequences and reverberations are shown in the virtues of the tables and graphs.

Content scanning and illumination investigations, such as mean, frequency, and percentages, were used to examine facts and figures. After the examination, a culminating report was written to provide an outline of the generated output.

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In this section, the results generated by the discussion and analyzed data are presented. The main purpose of the questioning was to gain a response and perception of the Awareness of Web 3.0 and metaverse.

In Table 1, the division is based on classification. Table 1 shows the distribution and responses of the questionnaires among the three groups: educators, investigators, and learners. The response percentages for each group were calculated based on the number of questionnaires distributed and responses received.

In Figure 3, a division based on classification is categorized as educators, investigators, and learners, where blue, yellow, and orange refer to the response percentages of educators, learners, and investigators, respectively. Figure 3 is self-created based on original data but developed with methodological guidance.

In Table 2, the division is based on gender. Table 2 shows the gender-wise feedback distribution and corresponding percentages, where 59% of the feedback was received from males (Virile) and 41% from females (Lady), totaling 87 responses.

In Figure 4, a division based upon gender where feedback is taken from males and females individually. Figure 4 is self-created based on original data but developed with methodological guidance.

Table 1. The division is based on classification.

Educators, investigators, and learners	Questionnaire distribution	Responses	Percentage
Educators	35	30	86%
Investigators	35	32	92%
Learners	30	24	80%

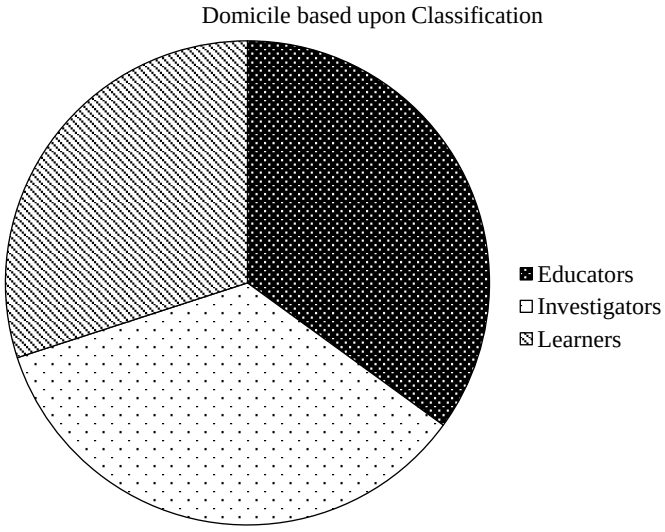

Figure 3. Division based on classification.

Table 2. The division is based on gender.

Gender	Feedback	Percentage
Virile (male)	52	59%
Lady (Female)	35	41%
Total	87	100%

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In Table 3, the division is based on generations. Table 3 shows the division based on generations regarding the awareness and knowledge of Web 3.0, and the metaverse. The age group between 15 and 24 responded was 49 (49%), whereas the age group between 25 and 39 responded was 29 (29%), the age group between 40 and 54 responded was 16 (16%), and those who were above 55 years responded was 6 (6%).

In Figure 5, a division based on generation is categorized by response types of different age groups (15–24, 25–29, 40–54, 55–above). Figure 5 is self-created using original data but developed with methodological guidance.

In Table 4, domicile-based division. Table 4 shows the awareness regarding technology based on region and locality where the people of the hinterland region responded was 6 (6%), the people belonging to the urban center responded was 75 (75%), the sub-urban areas people responded was 4 (4%) and the metropolitan city responded was 5 (5%).

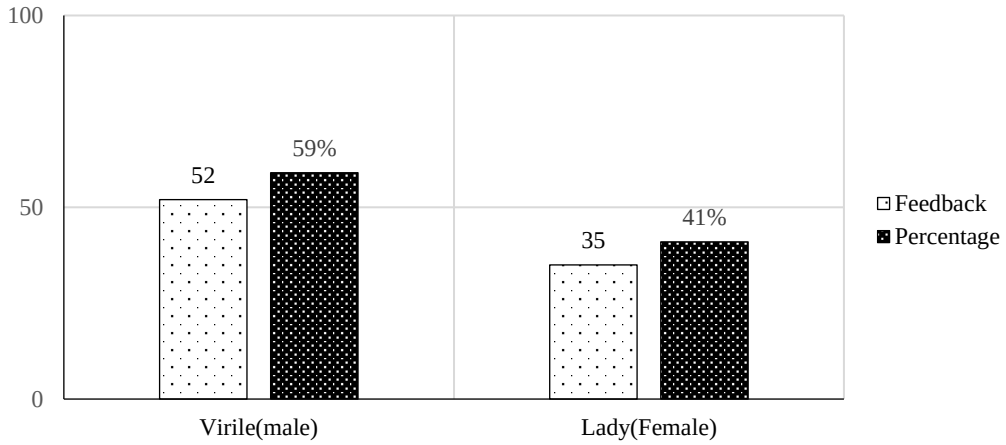

Figure 4. The division is based on gender.

Table 3. The division is based on generations.

Age division	Number	Percentage
15–24	49	49%
25–39	29	29%
40–54	16	16%
55–above	6	6%
Total	100	100%

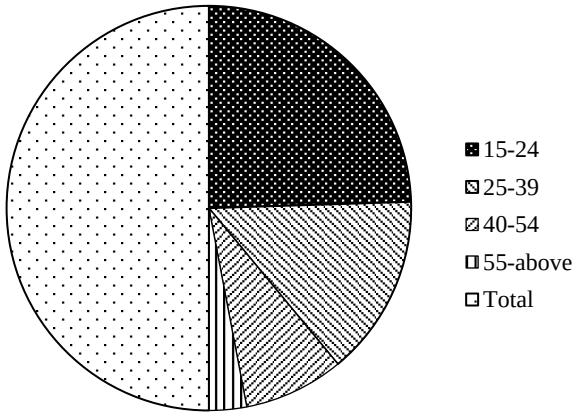

Figure 5. The division is based on generation.

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Table 4. Domicile-based division.

Domicile-based division	Feedback	Percentage
Hinterland	6	6%
Urban Center	75	83%
Sub-Urban	4	4%
Metropolitan City	5	5%
Total	90	98%

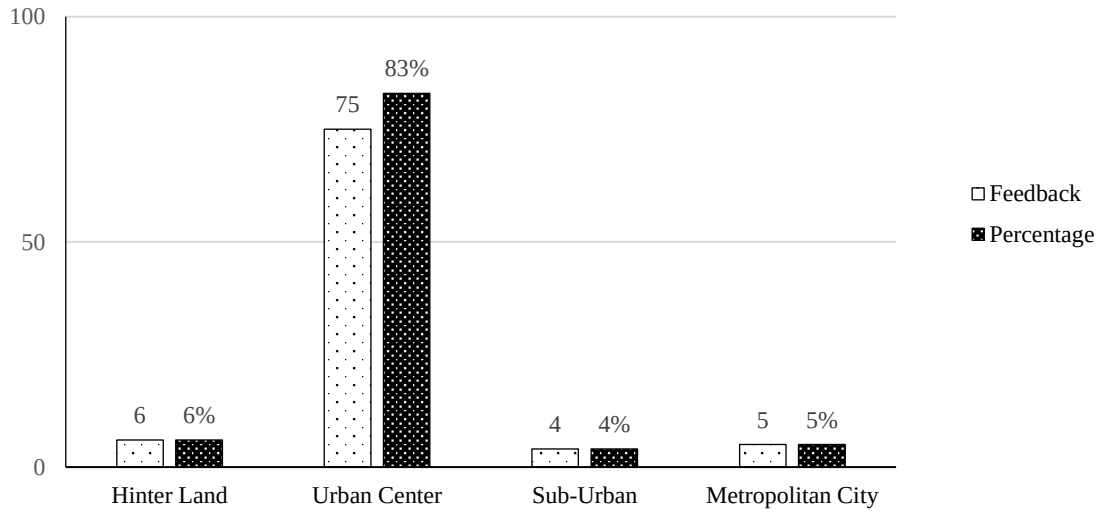

Figure 6. Domicile-based division.

Table 5. Network literacy.

Rate of network literacy	Feedback	Percentage
Excellent	17	20%
Satisfactory	65	75%
Undetermined	1	1%
Poor	1	1%
Indigent	2	2%
Total	86	99%

In Figure 6, the domicile-based division is categorized by feedback and percentages of different domiciles (hinterland, urban center, sub-urban, metropolitan city). Figure 6 is self-created using original data but developed with methodological guidance.

In Table 5, network literacy. Table 5 shows the knowledge regarding network literacy where the respondents of excellent are 17 (20%), satisfactory is 65 (75%), undetermined is 1 (1%), poor is 1 (1%), indigent 2 (2%).

In Figure 7, network literacy distribution is categorized as excellent, satisfactory, undetermined, poor, and indigent, with corresponding feedback and percentage values. Figure 7 is self-created based on original data but developed with methodological guidance.

In Table 6, browsers are used regularly. Table 6 shows the daily use of browsers, where Phoenix was 3 (3%), Microsoft Edge was 4 (4%), Apple Safari was 2 (2%), Chrome OS was 75 (86%), and Brave was 3 (3%).

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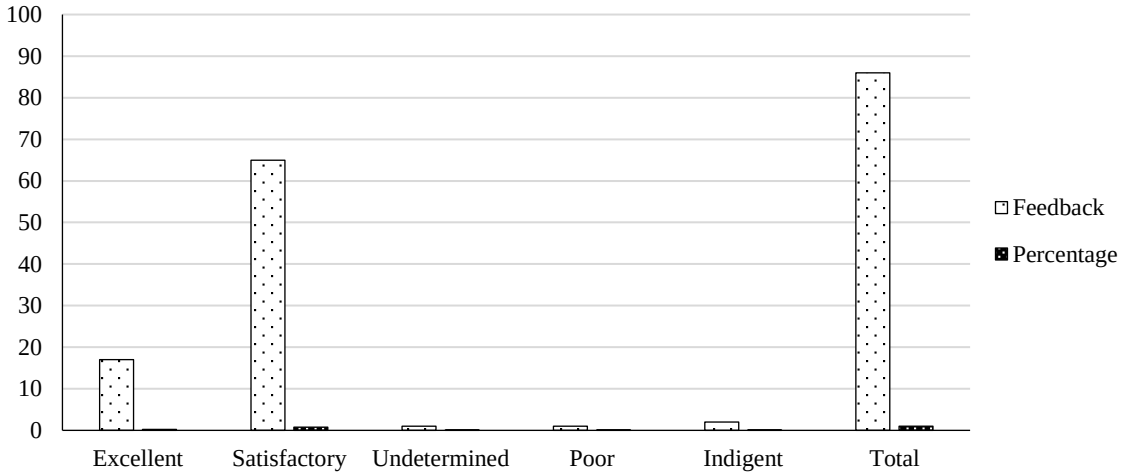

Figure 7. Network literacy.

Table 6. Browsers are used regularly.

Browsers using regularly	Feedback	Percentage
Phoenix (Firebox)	3	3%
Microsoft Edge	4	4%
Apple Safari	2	2%
Chrome OS	75	86%
Brave	3	3%
Total	87	98%

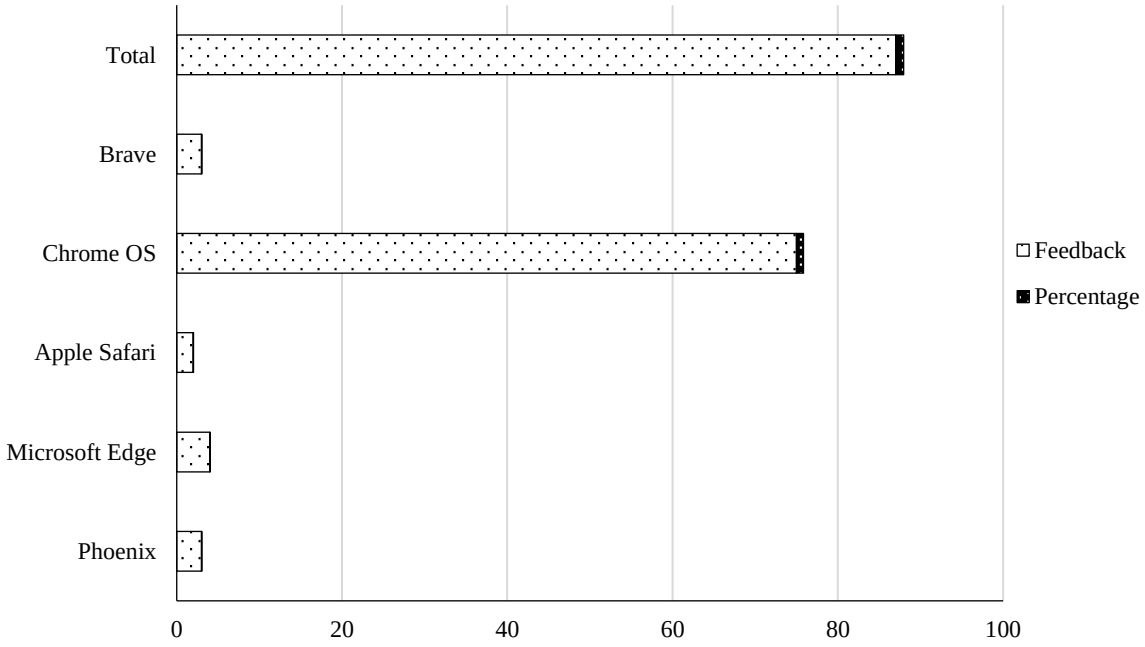

Figure 8. Browser use regularly.

In Figure 8, regular usage of browsers shows the distribution of feedback and percentages for browsers like Brave, Chrome OS, Apple Safari, Microsoft Edge, and Phoenix. Figure 8 is self-created based on original data but developed with methodological guidance.

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Table 7 shows using the internet frequently. Table 7 shows the use of the internet by users where the respondents of daily basis users are generally high. The responses we obtained on an everyday basis were 85 (95%), biweekly was 2 (2%), weekends were 1 (1%), fortnightly was 1 (1%), and sporadic was 0 (0%).

Figure 9 shows the use of the internet is frequently categorized by response types (biweekly, weekend, fortnightly). Figure 9 is self-created using original data but developed with methodological guidance.

Table 8, the impact of the internet on academics. Table 8 shows the impact of the internet and technologies on studies. There were 15 (18%) confronted, 65 (78%) coincided, 1 (1%) dubiety, 2 (2%) diverged, and 0 (0%) bitterly opposed.

In Figure 10, the impact of the internet on academics is categorized by response types (confront, coincide, dubiety, diverge, and bitterly oppose). Figure 10 is self-created using original data but developed with methodological guidance.

Table 7. Using the internet frequently.

Using internet frequently	Responses	Percentage
Everyday	85	95%
Biweekly	2	2%
Weekend	1	1%
Fortnightly	1	1%
Sporadic	0	0%
Total	89	99%

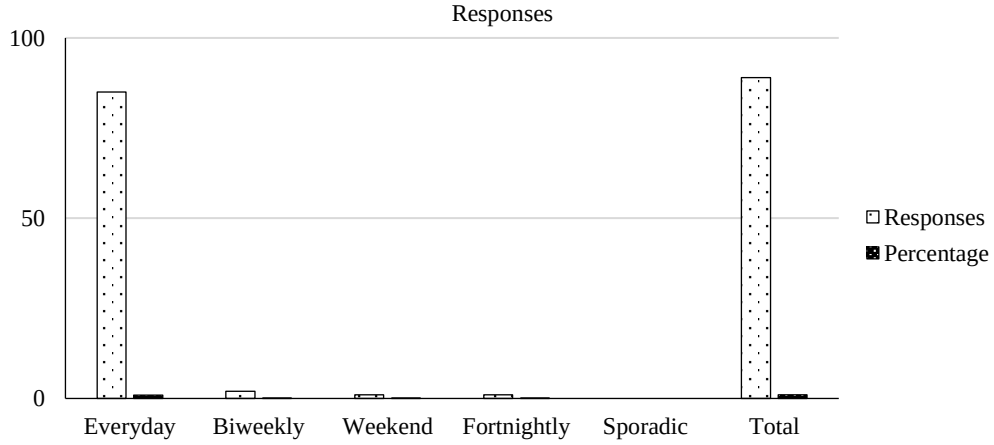

Figure 9. Using the internet frequently.

Table 8. Impact of the internet on academics.

Impact of the internet on academics	Responses	Percentage
Confront	15	18%
Coincide	65	78%
Dubiety	1	1%
Diverge	2	2%
Bitterly Oppose	0	0%
Total	83	99%

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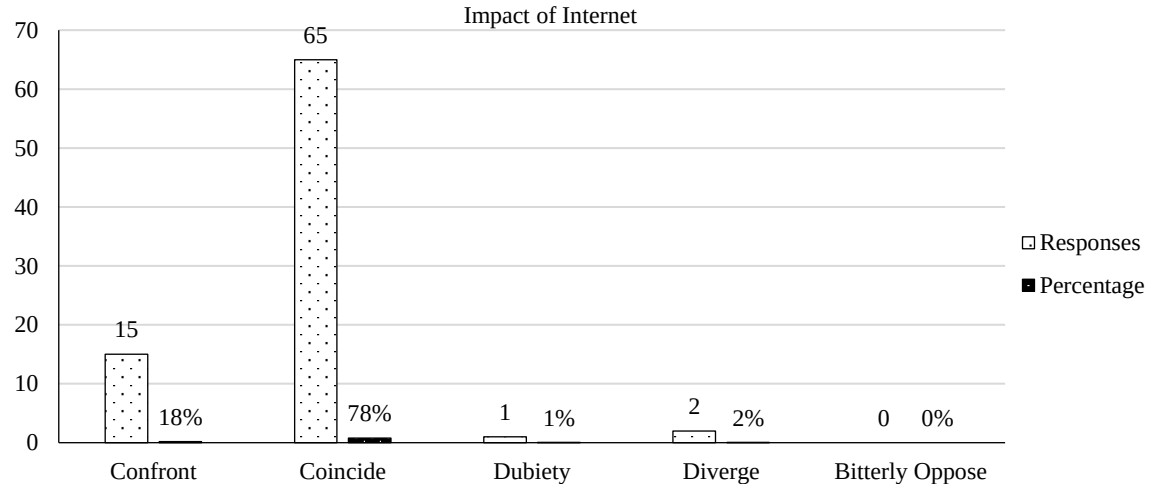

Figure 10. Impact of the internet on academics.

Findings and Suggestions

The percentage study was conducted to obtain knowledge of awareness among faculty members, researchers, students, and their surroundings. To understand the current scenario, some parameters were set to help us understand our thoughts and knowledge of our surroundings. To achieve this objective, some questionnaires were set, including some specific data with regard to achieving the objective. It is necessary and very important to encourage people to use Web 3.0 and metaverse technologies. Users are not allowed to use social platforms only for enjoyment purposes but also to achieve knowledge. Networking sites must be used to find problems and difficulties and must be a purpose of discussion on several issues by providing their thoughts and ideas.

CONCLUSION

Now, by drawing the inference, we can say that the multiverse is an anaglyph world where you can connect with 3D friends, objects, and places. For example, we can have a source of fun with our friends from the creator's perspective. Granting that Web 3.0, users can buy and sell their subjects. Additionally, users can change their construction and creation. In the present scenario, this network is in the developing stage and is obliged to perpetually observe the world; however, it broadens the difference gap or desires to comprehend preferably.

Social networking sites must be used to address several issues by providing thoughts and ideas. People must encourage knowledge of the metaverse and Web 3.0. There must be awareness regarding the tools and technologies of metaverse and Web 3.0.

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